

REMARKS

Claims 1-33 were pending in the application. Claims 7-8, 19-20, and 29-30 have been cancelled. Claims 1-6, 9-18, 21-28, and 31-33 have been amended. Support for the amendments to the claims can be found, e.g., at page 4, lines 18-20 and at page 12, lines 14-21. Also, the specification has been amended to correct minor informalities. No new matter has been added. Claims 1-6, 9-18, 21-28, and 31-33 remain pending in the application. Reconsideration is respectfully requested in view of the amendments to the claims and the following remarks.

I. Double Patenting

Claims 2, 13, and 24 were rejected on the ground of obviousness-type double-patenting as being unpatentable over claims 1, 11, and 21 of U.S. Patent No. 6,754,656 in view of U.S. Patent No. 5,247,672 (“Mohan”).

A terminal disclaimer is enclosed to overcome the double-patenting rejection.

II. The § 101 Rejections

Claims 1, 7-12, and 14-22 were rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Specifically, regarding claim 1 (and claims 7-11 which depend from claim 1) and claim 12 (and claims 14-22 which depend from claim 12), the Examiner asserts that the last determination step in claims 1 and 12 is not a tangible result. Further, with respect to claim 12, the Examiner asserts that there is no evidence in the specification whether the term “database system” includes a processor, and therefore the term has been interpreted in its broadest sense as software. And as such, claims 12 and 14-22 have been rejected as not being tangibly embodied.

Applicant has amended each of claims 1 and 12 to overcome the § 101 rejections. Specifically, the determination step in claims 1 and 12 has been removed, and claim 12 has been

further amended to recite that the database management system recited is implemented in a digital computer system. Applicant respectfully submits that the claims are now directed to statutory subject matter.

III. The §112 Rejections

Claims 23 and 30-32 were rejected under 35 U.S.C. §112, second paragraph, as being incomplete for omitting essential steps. Specifically, the Examiner notes that if the determining step (recited in the claims) is not valid, no steps are taken.

Applicant has deleted the determining step from the claims to overcome the § 112 rejections. Applicant, therefore, respectfully requests withdrawal of the § 112 rejections.

IV. The §103 Rejections

Claims 1-33 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Mohan in view of U.S. Patent No. 4,716,528 (“Crus”).

Applicant respectfully traverses the rejections.

Claim 1, as amended, recites a method for controlling concurrency of access to data in a database system. The method includes receiving a lock request for access to data in the database system, in which the lock request is a request for a page lock or a row lock for a corresponding row or page in the database system containing the data. The method further includes associating the lock request with a partition lock on a partition that contains the row or the page in the database system containing the data.

A. Mohan Fails To Disclose Associating a Page Lock Request or a Row Lock Request With a Partition Lock on a Partition as Recited in Claim 1

Mohan discloses a method and apparatus for reading data pages in a transaction processing system without locking the pages (see Abstract). To this end, when a transaction

prepares to access a page within a buffer pool, a comparison is made between a log sequence number of the page (page LSN) and a global_committed_LSN, and if the page LSN is older than the global_committed_LSN, there is no uncommitted transaction in process that has data corresponding to the page and, therefore, the page can be immediately read without locking the page (col. 5, ll. 55-59). With regard to locking, Mohan discloses obtaining locks at granularities such as record locks (e.g., row locks), page locks, table locks, and file locks (e.g., table space locks) (col. 5, ll. 63-65).

Although Mohan discloses locking at different granularities including using row locks and page locks, Mohan, however, fails to teach or suggest associating a page lock request or a row lock request with a partition lock on a partition, as recited in claim 1. Further, the Examiner acknowledges that Mohan does not disclose dividing a table into a plurality of partitions. Consequently, Mohan cannot disclose associating a page lock request or a row lock request with a partition lock on a partition.

B. Crus Fails To Disclose Associating a Page Lock Request or a Row Lock Request With a Partition Lock on a Partition as Recited in Claim 1

Crus discloses a method for managing lock escalation in a multi processing environment (see Abstract). In particular, Crus discloses using tablespace locking to limit the amount of storage needed for holding locks – i.e., to avoid too many page locks from being concurrently held by multiple users, a page locking protocol is escalated to a tablespace locking protocol (col. 3, l. 63 – col. 4, l. 2).

Crus (as with Mohan), however, fails to disclose or suggest associating a page lock request or a row lock request *with a partition lock* on a partition, as recited in claim 1. Instead, Crus discloses only escalating a page locking protocol to that of a tablespace locking protocol to

avoid lock storage capacity from being exceeded (col. 2, l. 61 – col. 3, l. 2). Crus fails in general to discuss use of partitions or partition locks.

C. The claim has limitations not taught by either reference

Both Mohan and Crus fail to disclose associating a page lock request or a row lock request with a partition lock on a partition, as recited in claim 1. Consequently, the combination of Mohan and Crus cannot render claim 1 obvious.

Claims 2-6 and 9-11 depend from claim 1, and are allowable for at least the reasons that apply to claim 1.

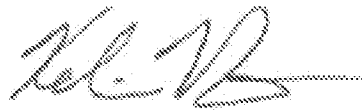
D. Other Independent Claims

Independent claims 12 and 23 (and the claims that depend therefrom) incorporate limitations similar to claim 1, and are also allowable for at least the reasons that apply to claim 1.

Applicant submits that claims 1-6, 9-18, 21-28, and 31-33 are allowable over the references cited above, and are in condition for allowance. Should any unresolved issues remain, the Examiner is invited to call the undersigned at the telephone number indicated below.

Respectfully submitted,

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